

MAR - 5 2004

K020895

## **510(K) SUMMARY OF SAFETY AND EFFECTIVENESS**

In accordance with the Food and Drug Administration Rule to implement provisions of the Safe Medical Devices Act of 1990 and in conformance with 21 CFR 807, this information serves as a Summary of Safety and Effectiveness for the use of ALLOMATRIX® Putty.

Submitted By:	<b>Wright Medical Technology, Inc.</b>
Date:	February 16, 2004
Contact Person:	<b>Roger D. Brown</b> Sr. Director, Clinical and Regulatory Affairs
Proprietary Name:	ALLOMATRIX® Putty
Common Name:	Bone Void Filler
Classification Name and Reference:	Filler, Calcium Sulfate Preformed Pellets – Class II, 888.3045
Device Product Code and Panel Code:	Orthopedics/MQV

### **DEVICE INFORMATION**

#### **A. INTENDED USE**

ALLOMATRIX® Putty is indicated only for bony voids or gaps that are not intrinsic to the stability of the bony structure. ALLOMATRIX® Putty is intended to be gently packed into bony voids or gaps of the skeletal system (i.e., the extremities and pelvis). These defects may be surgically created osseous defects or osseous defects created from traumatic injury to the bone.

#### **B. DEVICE DESCRIPTION**

ALLOMATRIX® Putty is a combination of Human Demineralized Bone Matrix (DBM) with a binding medium of calcium sulfate and carboxymethylcellulose.

ALLOMATRIX® Putty comes in the form of a kit with a premeasured powder, premeasured mixing solution, and the tools necessary to mix the components. After the powder is hydrated using all the mixing solution supplied in the kit, the resultant putty can then be handled and placed in the appropriate bone voids. This product is supplied sterile for single patient use.

### C. SUBSTANTIAL EQUIVALENCE INFORMATION

ALLOMATRIX® Putty was found to be substantially equivalent to the predicate device. The safety and effectiveness of ALLOMATRIX® Putty is adequately supported by the substantial equivalence information, materials data, and testing results provided within this Premarket Notification.

#### Osteoinductivity Potential

The DBM incorporated into ALLOMATRIX® Putty is assayed *in vitro* for its osteoinductive potential. The bioassay measures the proliferation of Saos human osteosarcoma cells in the presence of human DBM compared to positive and negative controls (osteoinductivity index).<sup>1</sup> Results from the bioassay were correlated with results from implantation of DBM into athymic rat muscle<sup>2</sup>, which demonstrated a correlation coefficient of 0.850 ( $p < 0.0005$ )<sup>1</sup> and accurately predicted the *in vivo* osteoinductivity of 99 of 101 donor lots. Additionally, clinical results using DBM with  $>0.20$  and  $\leq 0.20$  demonstrated a significant difference in healing as evaluated by radiography, 92% and 33% healing, respectively.<sup>3</sup>

ALLOMATRIX® Putty was assayed *in vivo* in the rat muscle pouch model<sup>2</sup> and found to be osteoinductive. Each lot of ALLOMATRIX® Putty is assayed *in vivo* in the athymic rat muscle pouch<sup>2</sup> to ensure the osteoinductivity potential of the final product.

1 Adkisson HD, Strauss-Schoenberger J, Gillis M, Wilkins R, Jackson M, and Hruska KA. Rapid Quantitative Bioassay of Osteoinduction, *J Ortho Res*, 2000, 18:503-511.

2 Lindholm TS, Urist MR. A quantitative analysis of new bone formation by induction in composite grafts of bone marrow and bone matrix, *Clin Orthop* 1980 Jul-Aug;(150):288-300.  
Note: The product is considered osteoinductive if one specimen (explant) contains new bone (i.e. bone occupied with lamellae), cartilage, and/or chondrocytes.

3 Wilkins RM, Clinical Effectiveness of Demineralized Bone Matrix Assayed in Human Cell Culture, *Advances in Tissue Banking*, 1999 3:113-124

#### Viral Inactivation Validation

The method for processing the DBM contained in ALLOMATRIX® Putty was evaluated for its viral inactivation potential. A panel of model potential human viruses representing various virus types, sizes, shapes, and genomes were evaluated. The viral inactivation testing demonstrated suitable viral inactivation potential of the processing method for a wide spectrum of potential human viruses.

#### Product Performance Testing

Evaluation of clinical performance was evaluated by a comparison of radiographic outcomes and the adverse event profiles compared to the predicate device. There were no significant differences in the radiographic outcomes or adverse event profiles of ALLOMATRIX® Putty and the predicate device.

Performance of ALLOMATRIX® Putty was evaluated in a canine model by radiographic and histological methods.



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

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Food and Drug Administration  
9200 Corporate Boulevard  
Rockville MD 20850

Roger D. Brown  
Director, Regulatory Affairs  
Wright Medical Technology  
5677 Airline Road  
Arlington, Tennessee 38002

Re: K020895  
Trade Name: ALLOMATRIX® Putty  
Regulation Number: 21 CFR 888.3045  
Regulation Name: Resorbable calcium salt bone void filler device  
Regulatory Class: Class II  
Product Code: MQV, MBP  
Dated: January 6, 2004  
Received: January 7, 2004

Dear Mr. Brown:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration

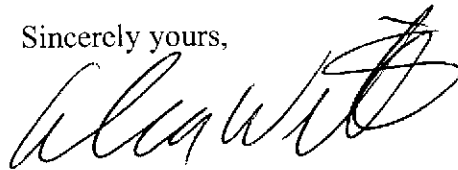
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and listing (21 CFR Part 807); labeling (21 CFR Part 801); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

This letter will allow you to begin marketing your device as described in your Section 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please contact the Office of Compliance at (301) 594-4659. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its Internet address <http://www.fda.gov/cdrh/dsma/dsmamain.html>

Sincerely yours,



Celia M. Witten, Ph.D, M.D.  
Director  
Division of General, Restorative  
and Neurological Devices  
Office of Device Evaluation  
Center for Devices and  
Radiological Health

Enclosure

## INDICATIONS FOR USE

510(K) Number (if known): K020895

Device Name: ALLOMATRIX® Putty

### Indications for Use:

ALLOMATRIX® Putty is indicated only for bony voids or gaps that are not intrinsic to the stability of the bony structure. ALLOMATRIX® Putty is intended to be gently packed into bony voids or gaps of the skeletal system (i.e., the extremities and pelvis). These defects may be surgically created osseous defects or osseous defects created from traumatic injury to the bone.

Prescription Use X  
(Per21 CFR 801.109)

OR

Over-The Counter Use \_\_\_\_\_  
(Optional Format 1-2-96)

(PLEASE DO NOT WRITE BELOW THIS LINE – CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

K020895  
(Division Sign-Off)  
Division of General, Restorative,  
and Neurological Devices

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